

Message

From: Strynar, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=5A9910D5B38E471497BD875FD329A20A-STRYNAR, MARK]
Sent: 11/6/2018 8:15:26 PM
To: Turpin, Barbara [bjturpin@email.unc.edu]; Surratt, Jason D. [surratt@unc.edu]
CC: Bodnar, Wanda M [wanda_bodnar@unc.edu]; Khan, Manal [manalk@email.unc.edu]; Warren, Jeffrey Dennis [jeff.warren@unc.edu]; Baumann, Karsten [kaba@email.unc.edu]; Zhang, Zhenfa [zhenfaz@email.unc.edu]; Riedel, Theran [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=9a61de4d9aa9499b8715ace92f20162d-Riedel, The]; Offenberger, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0cb339db65ae4a229317977de01d0336-Offenberger, John]
Subject: RE: great meeting with you last week at EPA

Barb,

I was implying perhaps we should sample some surface water bodies to look for the accumulation of the analyte, not that it occurs in the surface water. I think there is much less dilution compared to the Cape Fear River.

Mark

From: Turpin, Barbara [mailto:bjturpin@email.unc.edu]
Sent: Tuesday, November 06, 2018 12:42 PM
To: Strynar, Mark <Strynar.Mark@epa.gov>; Surratt, Jason D. <surratt@unc.edu>
Cc: Bodnar, Wanda M <wanda_bodnar@unc.edu>; Khan, Manal <manalk@email.unc.edu>; Warren, Jeffrey Dennis <jeff.warren@unc.edu>; Baumann, Karsten <kaba@email.unc.edu>; Zhang, Zhenfa <zhenfaz@email.unc.edu>; Riedel, Theran <Riedel.Theran@epa.gov>; Offenberger, John <Offenberger.John@epa.gov>
Subject: Re: great meeting with you last week at EPA

Jason and Mark,

My experience is that the nucleophilic and acid catalyzed reactions that happen in wet aerosols do not happen in a meaningful way in clouds. So I doubt that this would happen in surface waters. You need high concentrations of nucleophiles, like you have in wet aerosols – where the concentrations of solute are roughly equal to the concentration of water.

Barb

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From: "Strynar, Mark" <Strynar.Mark@epa.gov>
Date: Tuesday, November 6, 2018 at 11:41 AM
To: "Surratt, Jason D." <surratt@unc.edu>

Cc: "Bodnar, Wanda M" <wanda_bodnar@unc.edu>, "Khan, Manal" <manalk@email.unc.edu>, "Warren, Jeffrey Dennis" <jeff.warren@unc.edu>, "Turpin, Barbara" <bjturpin@email.unc.edu>, "Baumann, Karsten" <kaba@email.unc.edu>, "Zhang, Zhenfa" <zhenfaz@email.unc.edu>, "Riedel, Theran" <Riedel.Theran@epa.gov>, "Offenberg, John" <Offenberg.John@epa.gov>

Subject: RE: great meeting with you last week at EPA

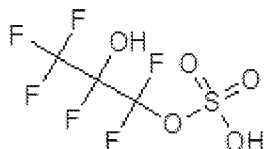
I went and took a look at many of the samples of water we have collected in the Fayetteville to Wilmington area in the past year. I really did not see any strong evidence of the presence of the HFPO-sulfate reaction product. I was doing extracted ion chromatograms for the M-H as well as two suspected fragments (on either side of the ether oxygen). This was all TOFMS data we have run in the past year and included onsite Chemours monitoring wells, Chemours effluent outfalls, local Cape Fear River water and finished drinking water.

This is not all inclusive as to samples that could be checked. Perhaps a local pond would accumulate this compound.

Mark

Molecular Formula: $C_3H_2F_8O_5S$

[M-H]⁻: 262.945436 Da



From: Surratt, Jason D. [<mailto:surratt@unc.edu>]

Sent: Monday, November 05, 2018 12:36 PM

To: Strynar, Mark <Strynar.Mark@epa.gov>

Cc: Bodnar, Wanda M <wanda_bodnar@unc.edu>; Khan, Manal <manalk@email.unc.edu>; Warren, Jeffrey Dennis <jeff.warren@unc.edu>; Turpin, Barbara <bjturpin@email.unc.edu>; Baumann, Karsten <kaba@email.unc.edu>; Zhang, Zhenfa <zhenfaz@email.unc.edu>; Riedel, Theran <Riedel.Theran@epa.gov>; Offenberg, John <Offenberg.John@epa.gov>

Subject: great meeting with you last week at EPA

Hi Mark,

Thank you again for you and your colleagues taking the time to meet with me after my research seminar last week!

I wanted to followup with you on three specific items:

- 1.) I know you said you were still finalizing your newest poster that summarizes all the PFASs that you have detected or know to be out there. Once you are ready, we would love to have a copy of this poster. If you send us a copy, are you ok with us sharing with all PIs, students, and Post Docs associated with the PFAST Network?
- 2.) Wanda informed me that Zhenfa Zhang is currently working on the synthesis for Nafion BP2. However, we are waiting for all the reagents to come in that we ordered.
- 3.) I'm really curious whether you will find the potential acid-catalyzed multiphase chemical reaction products of HFPO (see Scheme below) in your water samples previously analyzed by your LC/ESI-MS methods? Since fine aerosol particles in the southeastern U.S. are known to contain acidic water with large quantities of sulfate (with pHs approaching zero in some instances, but averaging around 1-2),

it is likely that HFPO could undergo the reactions I proposed below. This is similar to isoprene epoxydiols (IEPOX) that forms from the atmospheric oxidation of isoprene in the gas phase (see Figure 3 from Surratt et al., 2010, attached here). I attached previous publications if you are curious in our approach to understanding this process with IEPOX. Theran conducted some of the kinetic work in my lab when he was a Post Doc at UNC (I've also attached copies of that work). I'm glad to see Theran is on your team now.

We plan to take some similar approaches with HFPO in Barb's lab and my lab. Some of Barb's new tools are really helping us unravel the importance of acid-catalyzed multiphase chemistry of atmospherically relevant epoxides. You should note that we now know that acid-catalyzed multiphase chemistry of IEPOX yields 30-40% of total organic aerosol mass found within PM_{2.5}! So, it's possible if a lot of HFPO has been emitted, you could see some of the products below in some of your samples.

Jason

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